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YOUR DATA ADVENTURE

Stop That Truck!

Proactive IPTV Management at CenturyLink

Matt Olson

Principal Architect, CenturyLink

splunk>

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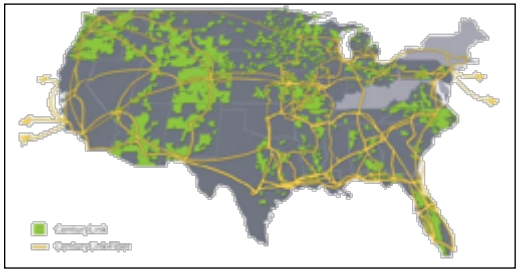
CenturyLink Company Overview

- Third largest telecommunications company in the United States
  - Annual revenues over $18 billion / Ranked in Fortune 500
- Key services include:
  - Broadband, voice and wireless services to consumers and businesses
  - Entertainment services under the CenturyLink™ Prism™ TV and DIRECTV brands
- Customers profile and stats:
  - Includes large corporations to end consumers
  - 15.1 million access lines
  - 6 million+ HSI broadband customers
  - 1.8 million video customers

My Background and Role

- Principal Architect, Performance Engineering Group
- Core functions of the group:
  - Build tools to support needs of different organizations
  - Ensure quality of service and availability of the network
  - Provide data analytics across infrastructure
  - Focus on all service offerings including VOIP and IPTV



Key Business Challenges for CenturyLink

- Manage rapid subscriber growth in the business
- Deliver superior customer experience (reduce churn)
- Improve operational efficiency of the network
- Reduce costs while improving performance
- Drive additional revenue from network infrastructure

Network Performance Management Needs to Support Core Priorities

Splunk – Different Use Cases Support Our Needs

Driver for Splunk: → Integrated view across network data – including transaction, service, process and platform

Legacy Uses: →
- VOIP Service Monitoring
- VOIP Partner Peering
- Automated Load Testing
- Call Path Tracing

New Uses: →
- Physical & Data Security
- Hadoop Analytics- HUNK
- End 2 End IPTV Management

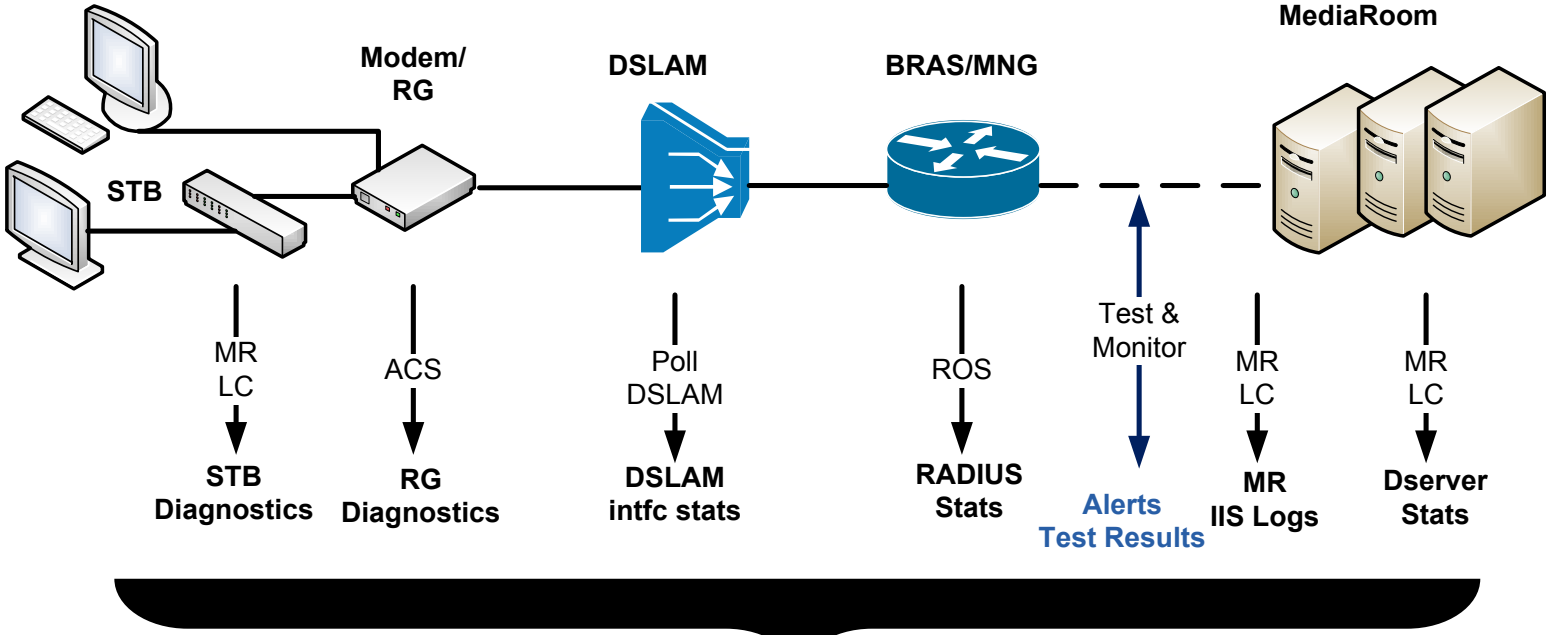
Splunk Architecture at CTL

- Splunk positioned to collect machine data from entire CenturyLink network
- Data sources:
  - Syslog from IP/MPLS backbone (routers/ switches), servers, appliances, gateways, video delivery subsystems, SNMP, call center call logs
  - Database logs, application (transactional) logs
  - Active, passive and transactional measurements throughout the network: data pulled into Splunk software using network probes and scripted input into database
- Indexing up to 600 GB data per day
- Splunk users: 250 regular (900+ unique)
- Teams using Splunk: NOC, Development, Architecture, Planning, Operations, Engineering, Service Provisioning, eCommerce team, Order Processing(IVR), Marketing, Product, IT, etc.
- Splunk Apps: Deployment Monitor, Windows App, Splunk on Splunk, Splunk DB Connect, our own customized Splunk Apps

What is PRISM?

- IPTV service based on Ericsson (Microsoft) Mediaroom
- ~200,000 subscribers: penetration rate around 10%, added 16,000 last Q
- 2 Super VHO serving 8 States and ~18 markets
- **Growth area**: while consumer landlines and HSI customers shrink, IPTV is steadily increasing

PRISM Service Delivery Components



splunk> x10

"I spent 10 hours with two guys working on something Matt did with Splunk in 10 minutes! I love this tool!"

PRISM Splunk Datasources

- **There are 48 total sources of data coming into Splunk. Average of 15GB/ day, peaks to 31GB (will grow…):**
  - Ericsson Mediaroom Dserver and Aserver logs, Channel Tunes, VOD Plays
  - Ineoquest video quality probe alert logs
  - Residential Gateway (RG - DSL Modem) statistics
  - Wireless and Wired Set Top Box (STB) statistics
  - PC360 Installation Test Results
  - “Triggered” API Calls for More Granular STB and RG Data
  - Trouble Ticket Data

- Ingestion methods include Syslog, flat-file (forwarder), DB Connect and custom search commands (API wrappers)

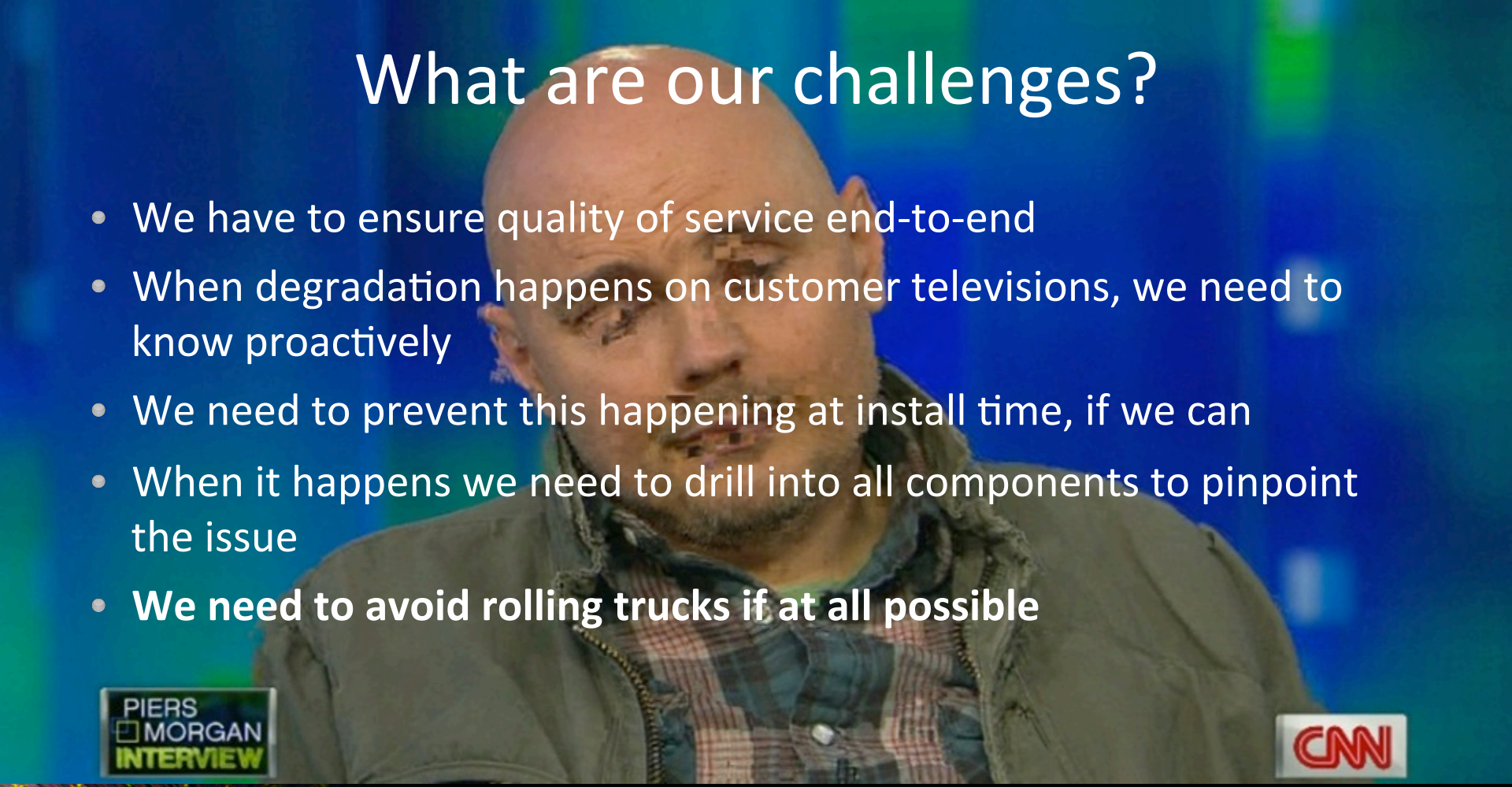
Avoiding Churn

- Easy for customers to switch back to cable or satellite
- Ever increasing competition from Netflix, Amazon, and Hulu
- Customers are more tolerant of internet or voice outages than they are of video

…customer experience is paramount!

What are our challenges?

- We have to ensure quality of service end-to-end
- When degradation happens on customer televisions, we need to know proactively
- We need to prevent this happening at install time, if we can
- When it happens we need to drill into all components to pinpoint the issue
- **We need to avoid rolling trucks if at all possible**



Why avoid truck rolls?

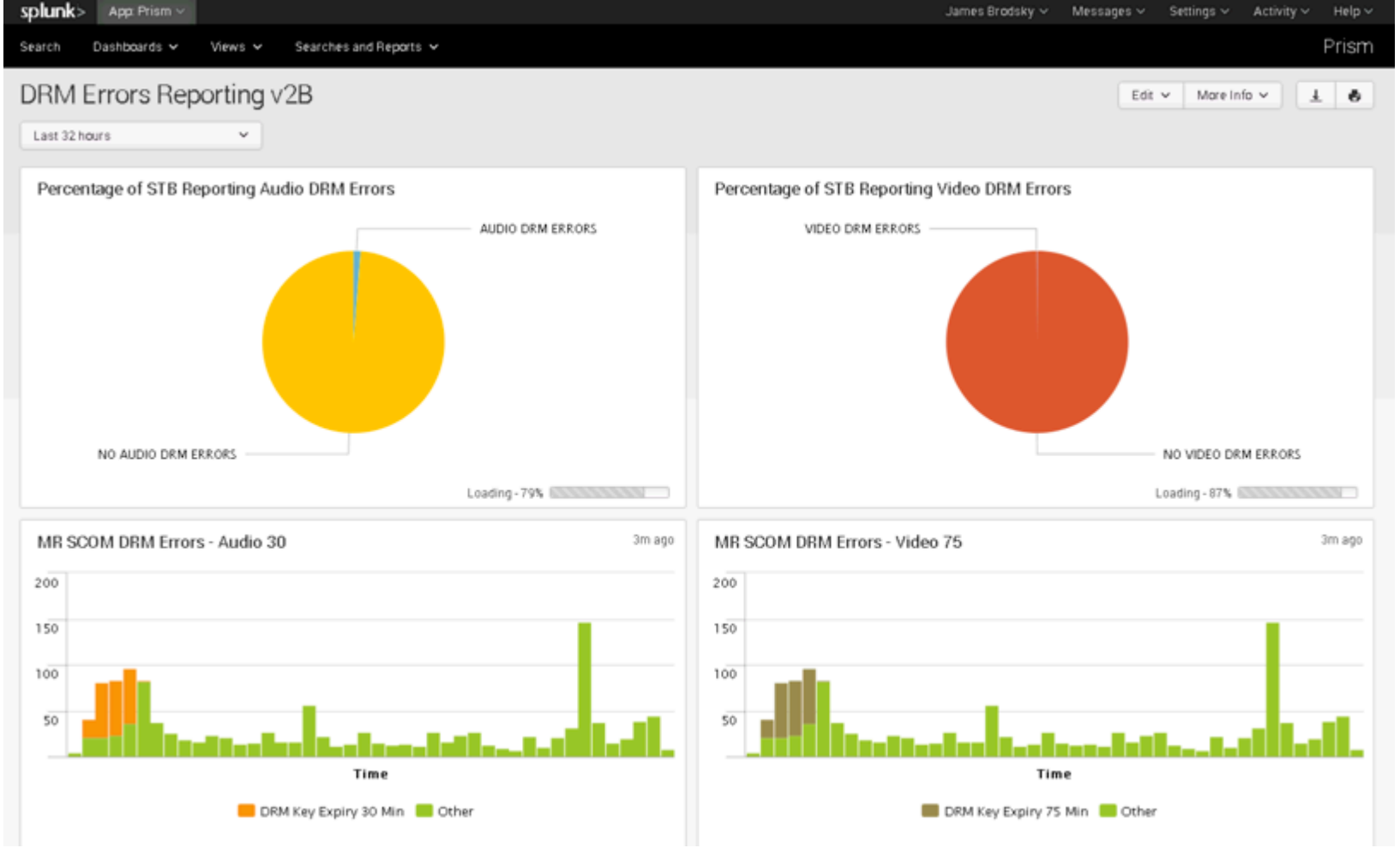
- Average cost of a truck roll is ~ $150 NOT including labor. Labor is $50 per hour. Average PRISM truck roll results in a three-hour visit
- Repeat truck rolls are particularly infuriating, especially for the subscriber
- Rolling the “wrong truck” is possible – i.e. to solve LAN issues within the home when it’s really a copper/fiber issue. This requires a re-roll

How to avoid truck rolls?

- Get the right data in front of the right people in a timely, accurate, and granular manner
  - Technicians will no longer have to “swivel chair” to understand issues
- Know “where the problem is” – don’t roll a copper truck if the problem is clearly on the LAN
- Know “if this was always a problem” by incorporating manual and automated test data
- Know “what didn’t work before” by displaying previous ticket data and equipment history

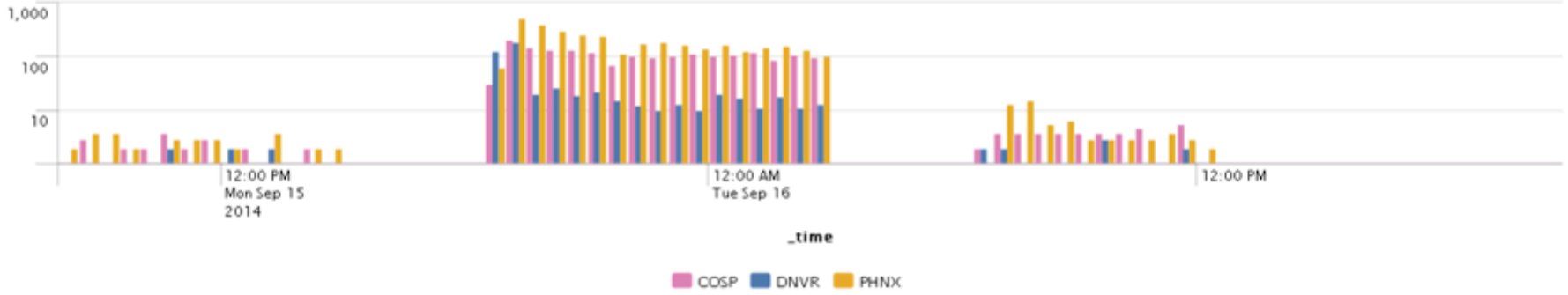
PRISM Critical Statistics Monitoring

- Gather critical STB and other metrics on a regular basis, threshold alert when they are above static or dynamic thresholds
  - DRM Errors, as an example
  - 30 minute “Audio” key errors are harbinger of doom
  - 75 minute “Video” key errors = doom has occurred. No HGTV available
  - Based on outage in mid-September
- Correlate with SCOM data
- Correlate with Call Center data
- Audience: Operations techs, field techs, customer care

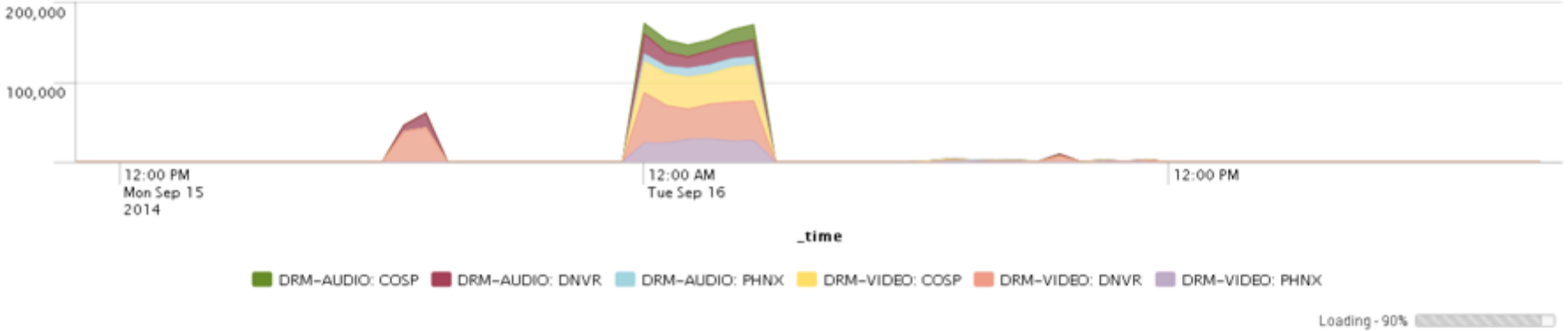

splunk> App: Prism
James Brodsky
Messages
Settings
Activity
Help
Search
Dashboards
Views
Searches and Reports
Prism
DRM Errors Reporting v2B
Edit
More Info
Last 32 hours
Percentage of STB Reporting Audio DRM Errors
AUDIO DRM ERRORS
NO AUDIO DRM ERRORS
Loading - 79%
Percentage of STB Reporting Video DRM Errors
VIDEO DRM ERRORS
NO VIDEO DRM ERRORS
Loading - 87%
MR SCOM DRM Errors - Audio 30
3m ago
200
150
100
50
Time
DRM Key Expiry 30 Min
Other
MR SCOM DRM Errors - Video 75
3m ago
200
150
100
50
Time
DRM Key Expiry 75 Min
Other

STB Counts with DRM Errors by Mkt

4m ago

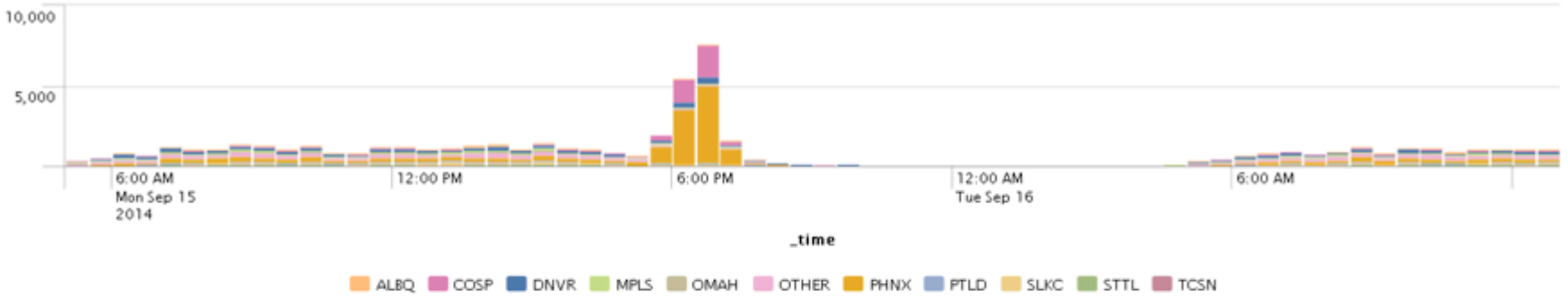


Max DRM Error Counts by Mkt Audio/Video



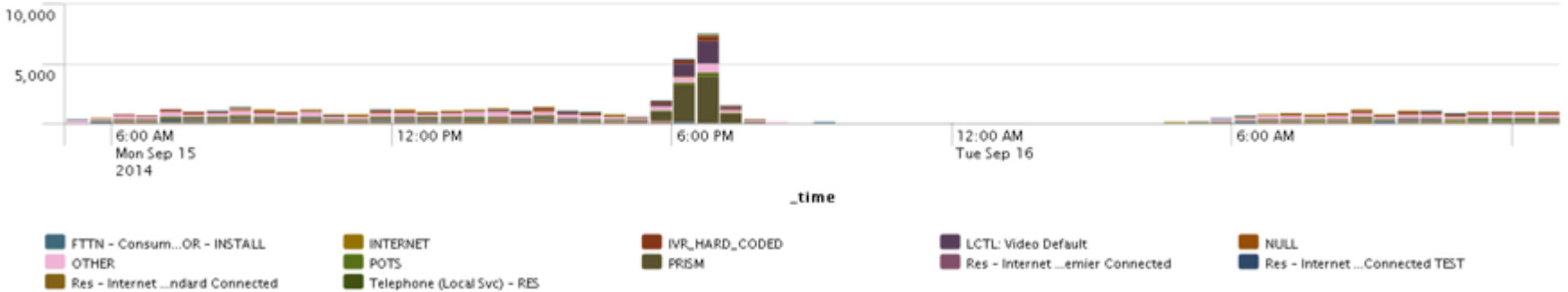
Call Center Sessions by POP

4m ago



Call Center Sessions by Call Reason

4m ago



Audio DRM Errors by STB

4m ago

WTN	A-DRM-ERRORS-AVG	A-DRM-ERRORS-MAX	STB
CLSPCO_MONRLA_VNOC		1065256	TFTAAGN329510097
[redacted]		344746	TAAAAGM341230671
[redacted]		344114	M91320EJ0202
[redacted]		270807	TAAAAGM339430429
[redacted]		243950	TABAAGM342630069
[redacted]		242162	TABAAGM345430104
[redacted]		240662	M91334EJ1888
[redacted]		240396	M91139FA0581
[redacted]		239610	M91247EJ0682
[redacted]		238894	M91316EJ3418

« prev 1 2 3 4 5 6 7 8 9 10 next »

Video DRM Errors by STB

4m ago

WTN	V-DRM-ERRORS-AVG	V-DRM-ERRORS-MAX	STB	M
CLSPCO_MONRLA_VNOC		2128957	TFTAAGN329510097	
[redacted]		554497	M91334EJ2935	Pl
[redacted]		539415	TABAAGM345430235	C
[redacted]		533653	TAAAAGM335410291	C
[redacted]		528570	M91322EJ0061	Pl
[redacted]		524464	TAEABGM412480240	Pl
[redacted]		514839	M91334EJ5587	
[redacted]		512530	TAAAAGM339730485	Pl
[redacted]		511185	M91247EJ1549	Pl
[redacted]		508809	160770864 TABAAGM351760204	D

« prev 1 2 3 4 5 6 7 8 9 10 next »

Heatmap of DRM Errors by Hour/Market

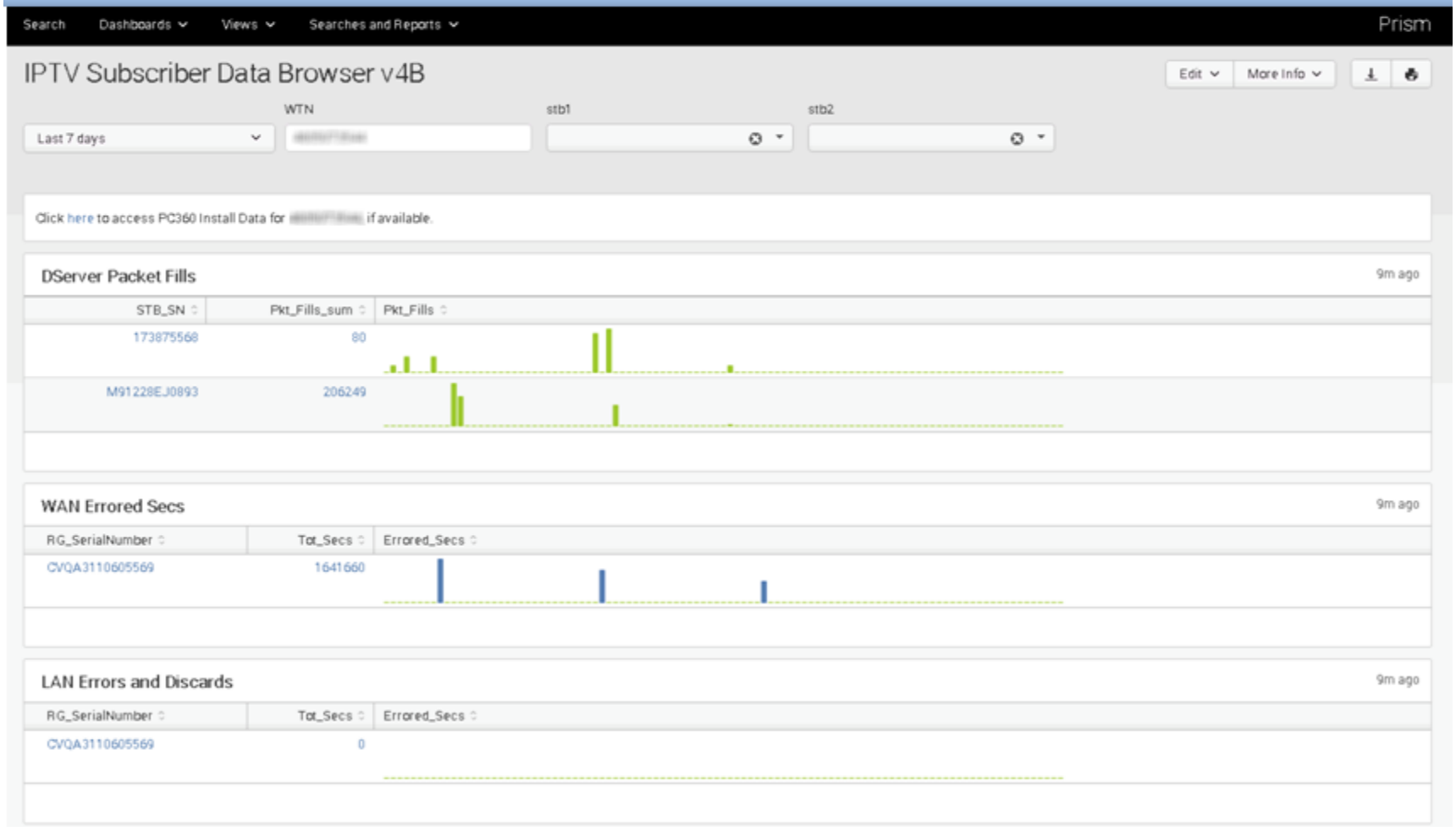
5m ago

_time	COSP	DNVR	PHNX	Total
2014-09-15 07:00	2	0	4	6
2014-09-15 08:00	1	0	4	5
2014-09-15 09:00	1	0	0	1
2014-09-15 10:00	4	1	4	9
2014-09-15 11:00	2	0	2	4
2014-09-15 12:00	1	1	1	3
2014-09-15 13:00	0	1	3	4
2014-09-15 14:00	1	0	2	3
2014-09-15 15:00	0	0	0	0
2014-09-15 16:00	0	0	0	0
2014-09-15 17:00	0	0	0	0
2014-09-15 18:00	31	127	63	221
2014-09-15 19:00	350	205	929	1484
2014-09-15 20:00	266	45	547	858
2014-09-15 21:00	191	37	350	578
2014-09-15 22:00	199	22	360	581
2014-09-15 23:00	213	23	310	546
2014-09-16 00:00	210	37	290	537
2014-09-16 01:00	206	29	306	541
2014-09-16 02:00	204	24	233	461
2014-09-16 03:00	0	0	0	0
2014-09-16 04:00	0	0	0	0
2014-09-16 05:00	0	0	0	0
2014-09-16 06:00	1	1	0	2
2014-09-16 07:00	6	1	28	35
2014-09-16 08:00	6	0	11	17
2014-09-16 09:00	6	2	4	12
2014-09-16 10:00	7	0	4	11

PRISM Subscriber Drill Down

- PRISM Subscriber drill down. Provide “Working Telephone Number” which uniquely identifies subscriber. Get an A to Z picture of subscriber’s service, with very recent data:
  - Dserver Packet Fills
  - LAN/WAN/Wireless stats
  - STB Diagnostics
  - Recent and historical tickets
  - Original Installation Data
  - Drill down to more details

- Audience: Operations techs, field techs, customer care


Search
Dashboards
Views
Searches and Reports
Prism
IPTV Subscriber Data Browser v4B
Edit
More Info
WTN
stb1
stb2
Last 7 days
Click here to access PC360 Install Data for [redacted] if available.
DServer Packet Fills
9m ago
STB_SN
Pkt_Fills_sum
Pkt_Fills
173875568
80
M91228EJ0893
206249
WAN Errored Secs
9m ago
RG_SerialNumber
Tot_Secs
Errored_Secs
CVQA3110605569
1641660
LAN Errors and Discards
9m ago
RG_SerialNumber
Tot_Secs
Errored_Secs
CVQA3110605569
0

STB Ethernet Errors

10m ago

STB_SN	Ethernet Errors	Ethernet_Errors
173875568	0	
M91228EJ0893	238	

STB Receiver Errors

10m ago

STB_SN	Receiver Errors	Receiver_Errors
173875568		
M91228EJ0893		

STB Details

10m ago

_time	id	BoxVendor	BoxType	ClientVersion	BootRomVersion	LastRebootTime
2014-09-16 20:06:59	173875568	CISCO	ISB7005	2.3.28587.8070	2.1025	
2014-09-16 20:06:59	M91228EJ0893	MOTOROLA	VIP1232	2.3.28587.8036	1.1062	

RG Details

10m ago

IPAddress	MACAddress	SerialNumber	Manufacturer	ModelName	SoftwareVersion	LastActivationTime	LastContactTime	isActivated	isBonded	hasIPTV	isWirelessSupported
[redacted]	40:8B:07:E9:5C:01	CVQA3110605569	Actiontec	C2000A	CAH003-31.30L.46	Sat May 04 12:04:23 CDT 2013	Tue Sep 16 12:55:21 CDT 2014	1	0	1	true

Topology Details

11m ago

HeadEnd	Market	row 3	row 4	row 5	DSLAM-SSP
VHO2 Denver	Phoenix	[redacted]	[redacted]	[redacted]	[redacted]-4-1

Ticket History

11m ago

CALLER_NAME	CUSTOMER_SESSION_AI	TIMESTAMP	DISPATCH	REASON_FOR_CALL	CUSTOMER_SESSION_MODE	TICKETING_MODE	CODES	TRUNCTRANS
[redacted]	46108118		No	TICKET_CLOSE_TEMPLATE	CREATED_TICKET	POTS	CPE Problem / CenturyLink CPE Problem / Adjust Settings/Cables /Batteries / /	[redacted] Issue: prism and inet not working / cx had moved the phone cord to wrong slot on modem; move to dsl slot and tv and inet came on / eoc NM Patricia Customer code :616 Fetching Conn...click for more...
[redacted]	46108103	Mon Jan 27 02:48:06 GMT 2014	No	Transfer - Prism HD	LOGGED_CALL	HSI	Logged Call / Out of Scope / Misdirect / Transfer/Refer / Prism HD	[redacted] Verification billng address ssn Modem: OS: Symptoms: cx called and said her inet service is not working cx said she moved the...click for more...

Errors for STB 1 (*)

11m ago

column	val
avg(Receiver_AudioDataDropped)	40750.000000
avg(Receiver_DroppedPacketsUntilRap)	426.333333
avg(Receiver_VideoDecoderErrors)	12.000000
avg(Receiver_AudioSamplesDropped)	11.000000
avg(Receiver_EcmLookupError)	10.333333
avg(Ethernet_Dropped_Packets)	8.814815
avg(Ethernet_CRC_Error_Count)	0.000000
avg(Receiver_AudioCryptoError)	0.000000
avg(Receiver_AudioDecoderErrors)	0.000000
avg(Receiver_AudioDescCryptoError)	0.000000

« prev 1 2 3 next »

Errors for STB 2 (*)

11m ago

column	val
avg(Receiver_AudioDataDropped)	40750.000000
avg(Receiver_DroppedPacketsUntilRap)	426.333333
avg(Receiver_VideoDecoderErrors)	12.000000
avg(Receiver_AudioSamplesDropped)	11.000000
avg(Receiver_EcmLookupError)	10.333333
avg(Ethernet_Dropped_Packets)	8.814815
avg(Ethernet_CRC_Error_Count)	0.000000
avg(Receiver_AudioCryptoError)	0.000000
avg(Receiver_AudioDecoderErrors)	0.000000
avg(Receiver_AudioDescCryptoError)	0.000000

« prev 1 2 3 next »

Key Parameters for RG

11m ago

short_parameter	max(Value)	stdev(Value)
WAN.2.Total.HECErrors	744051265	0.000000
WAN.2.Total.CRCErrors	16865845	0.000000
WAN.2.Total.ATUCFECErrors	3424371	0.000000
WAN.2.Total.FECErrors	202653	15.580971
WAN.2.Total.ErroredSecs	116378	0.000000
WAN.2.Total.SeverelyErroredSecs	47788	0.000000
WAN.2.Total.ATUCCRCErrors	3615	0.000000
WAN.2.Total.InitErrors	5	0.000000
LAN.1.HPNA.1.ErrorsReceived	0	0.000000
WAN.2.1.IP.2.EthernetErrorsReceived	0	0.000000

« prev 1 2 next »

PC360 Drilldown

Edit More Info

WTN

[redacted]

2h ago

6

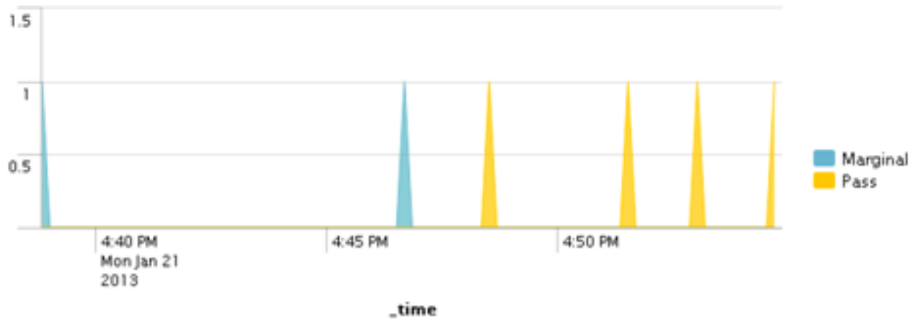
TESTS FOUND

Test Result Summary

2h ago

_time	pc360_opensloop_len_tr_result	pc360_techname	kicknit_data_id
2013-01-21 16:54:45	Pass	[redacted]	2267
2013-01-21 16:53:07	Pass	[redacted]	2266
2013-01-21 16:51:34	Pass	[redacted]	2264
2013-01-21 16:48:32	Pass	[redacted]	2260
2013-01-21 16:46:48	Marginal	[redacted]	2259
2013-01-21 16:38:58	Marginal	[redacted]	2257

2h ago



Test Details

1m ago

column	row 1
circuit_id	7025470294
date_format_date_entered_m_d_Y_T	01-21-2013
pc360_cap_balance_pct	0.36
pc360_cap_balance_result	Pass
pc360_circuit_noise	0
pc360_long_balance_result	Pass
pc360_opensloop_len_rg	6928
pc360_opensloop_len_rg_result	Pass
pc360_opensloop_len_tg	6953
pc360_opensloop_len_tg_result	Pass
pc360_opensloop_len_tr	7766
pc360_opensloop_len_tr_result	Marginal
pc360_power_infl	65
pc360_res_balance_pct	0.01
pc360_res_balance_result	Pass
pc360_rg_circ_res	999
pc360_rg_circ_res_result	Pass
pc360_rg_circ_res_units	MOhms
pc360_rg_loop_res	182
pc360_rg_loop_res_result	Pass
pc360_rg_loop_res_units	Ohms

Search Dashboards Views Searches and Reports Prism

JB: STB Detail Drill

Edit More Info

WTN

[redacted] Submit

STB Assigned to WTN [redacted]

3m ago

ID	IP	MAC_ADDRESS	registered	lastreport
160936701	192.168.0.201	50:39:55:F0:01:53	01/30/2014 13:00:26.611	07/23/2014 11:17:03.997
M91334EJ5836	192.168.0.200	38:6B:BB:E5:69:94	01/30/2014 13:00:27.216	07/22/2014 15:45:54.797
161671002	192.168.0.202	CC:0D:EC:1E:48:89	01/30/2014 13:01:10.672	07/23/2014 23:36:57.933

What Channels for M91334EJ5836?

3m ago

M91334EJ5836 Hardware Details

3m ago

Vendor	Model	Boot ROM Version	Last Reboot	Client Version	Recording Count	VOD PB Success
MOTOROLA	VIP1232	1.1062	6/25/2014 5:46:59 AM 9/8/2014 6:39:22 PM	2.3.28587.8036	19	0

M91334EJ5836 Hardware Details

4m ago

Vendor	Model	Boot ROM Version	Last Reboot	Client Version	Recording Count	VOD PB Success
MOTOROLA	VIP1232	1.1062	6/25/2014 5:46:59 AM 9/8/2014 6:39:22 PM	2.3.28587.8036	19	0

metric

× AvailablePhysicalMemory

STB Metrics Trend for AvailablePhysicalMemory on M91334EJ5836

2m ago

PRISM Aggregate Views

- Operations dashboard aggregation. Get a broader picture of overall service:
  - All STB across all markets – find outliers, get proactive
  - All RG across all markets – find outliers, get proactive
  - Number/severity of tickets opened
  - All Mediaroom alerts (SCOM data)
  - Traditional network performance data from IP routers, DSLAMs, etc
  - Real-time monitoring of Ineoquest probes
- Audience: Operations, Executives

JB - STB Aggregate

Edit | More Info

Last 60 minutes

4m ago

4.10

AVERAGE MBPS IN COLORADO SPRINGS

4m ago

4.38

AVERAGE MBPS IN PHOENIX

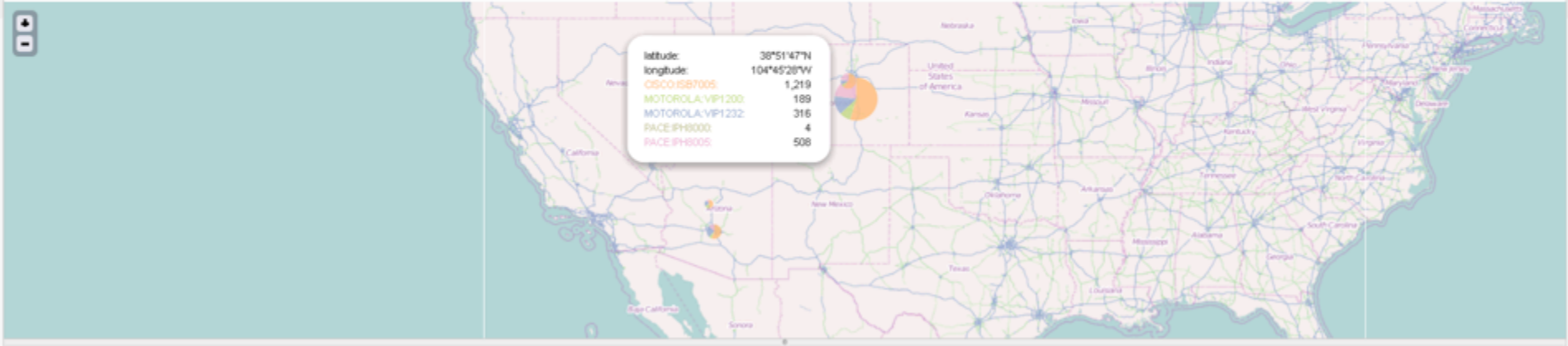
4m ago

4.53

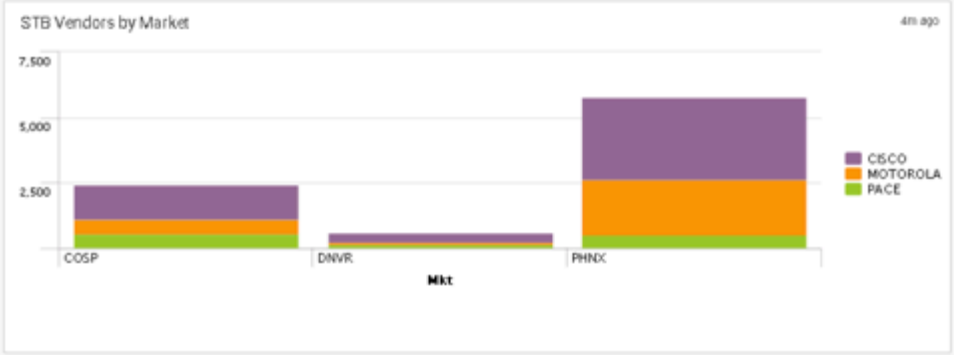
AVERAGE MBPS IN DENVER

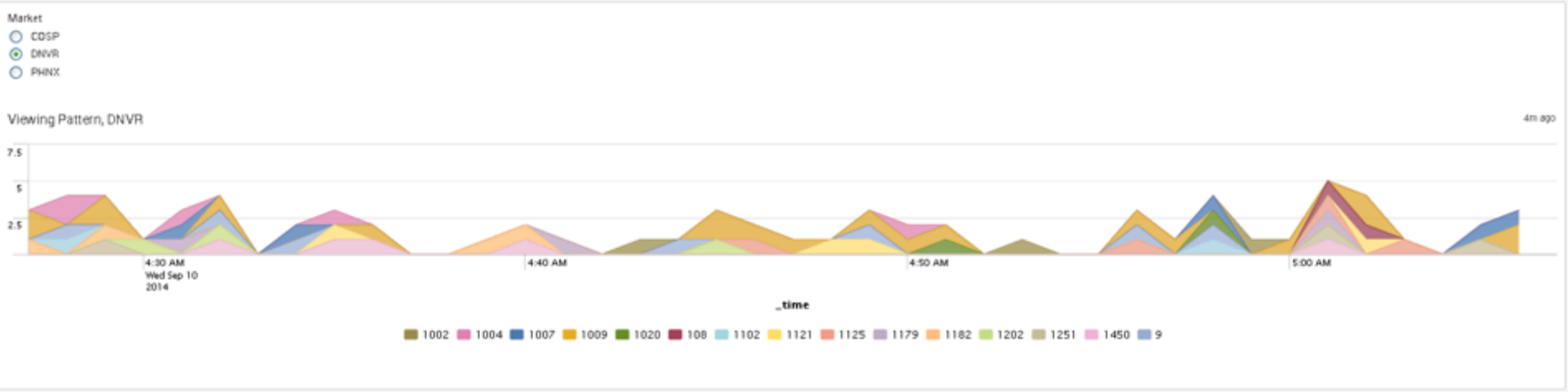
Location of STB Types/Vendors

4m ago



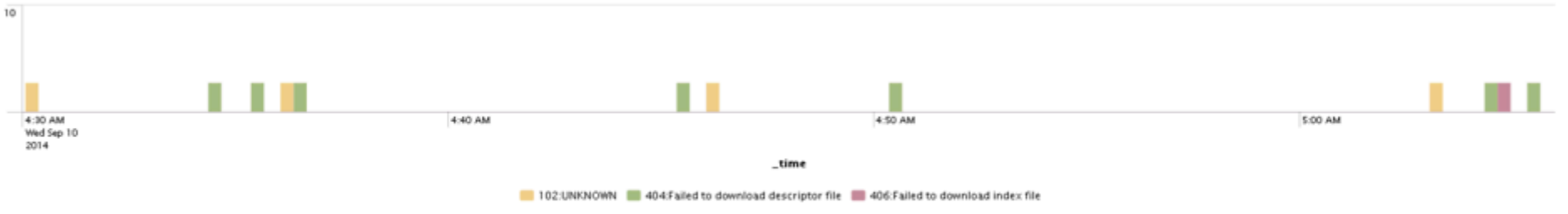
STB Types by Market
4m ago
10,000
1,000
100
10
IPH8000
IPH8005
ISB7005
VIP1200
VIP1216
VIP1232
VIP2502W
BoxType
COSP
DNVR
PHNX


STB Vendors by Market
4m ago
7,500
5,000
2,500
COSP
DNVR
PHNX
Mkt
CISCO
MOTOROLA
PACE


Market
COSP
DNVR
PHNX
Viewing Pattern, DNVR
4m ago
7.5
5
2.5
4:30 AM
Wed Sep 10
2014
4:40 AM
4:50 AM
5:00 AM
_time
1002 1004 1007 1009 1020 108 1102 1121 1125 1179 1182 1202 1251 1450 9

VOD Error Codes over Time

6m ago



Average VOD Plays per STB/Market

6m ago

Mkt	Average_VOD_Plays
DNVR	4.19
COSP	3.24
PHNX	2.48

Most Popular Channel per Hour/Market

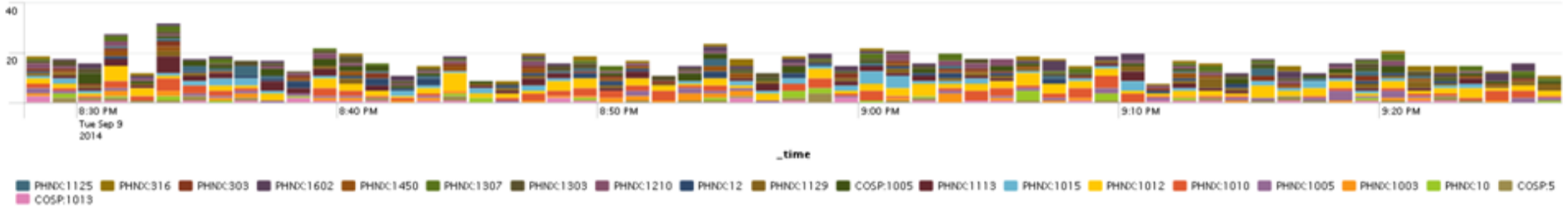
6m ago

_time	COSP	DNVR	PHNX
2014-09-09 05:00:00	1602	1602	1602
2014-09-09 05:30:00	1602	1602	1602
2014-09-09 06:00:00	1602	1602	1602
2014-09-09 06:30:00	1602	1602	1602
2014-09-09 07:00:00	1602	1009	1602
2014-09-09 07:30:00	1602	1602	1602
2014-09-09 08:00:00	1602	1602	1602
2014-09-09 08:30:00	1602	1009	1602
2014-09-09 09:00:00	1602	1602	1602
2014-09-09 09:30:00	1602	1009	1602

« prev 1 2 3 4 5 next »

Top Channels by Market over Time

4m ago



Highest Average Video Decoder Errors

3m ago

WTN	sparkline	Errors	Market
[redacted]		6334.000000	PHNX
[redacted]		2206.000000	PHNX
[redacted]		1880.000000	COSP
[redacted]		1475.000000	PHNX
[redacted]		1459.000000	PHNX
[redacted]		444.000000	COSP
[redacted]		226.000000	PHNX
[redacted]		172.000000	COSP
[redacted]		166.000000	COSP
[redacted]		151.000000	COSP

« prev 1 2 3 4 5 6 7 8 9 10 next »

Highest Average Audio Decoder Errors

3m ago

WTN	sparkline	Errors	Market
[redacted]		1585.000000	COSP
[redacted]		1346.000000	PHNX
[redacted]		1022.000000	PHNX
[redacted]		979.000000	PHNX
[redacted]		959.000000	COSP
[redacted]		680.000000	COSP
[redacted]		677.000000	
[redacted]		676.000000	COSP
[redacted]		650.000000	PHNX
[redacted]		581.000000	PHNX

« prev 1 2 3 4 5 6 7 8 9 10 next »

Highest Dserver Tuner Fills

3m ago

WTN	sparkline	Tuner_Fill	STB	Market	Type
[redacted]		68433.500000	161264703 TAAAAGM339730260	COSP	IPH8005 ISB7005
[redacted]		7690.000000	TAAAAGM339730998	COSP	IPH8005
[redacted]		5897.000000	M91030FA6983	PHNX	VIP1232
[redacted]		5316.000000	TAAAAGM340430800		IPH8005
[redacted]		5211.000000	175058040	PHNX	ISB7005
[redacted]		2105.000000	M91139FA3532 M91227EJ1541	PHNX	VIP1200 VIP1232
[redacted]		1811.000000	TAEABGM412480405	PHNX	IPH8005
[redacted]		1714.000000	163431663	PHNX	ISB7005
[redacted]		1318.000000	161700358	PHNX	ISB7005
[redacted]		1130.000000	175403875	COSP	ISB7005

« prev 1 2 3 next »

Number of STB Seen per Market - Yesterday

6m ago

Mkt	count
PHNX	68946
COSP	29320
DNVR	7319

Number of STB Seen per Market Today

6m ago

Mkt	count
PHNX	20311
COSP	8101
DNVR	2186

Search Dashboards Views Searches and Reports Prism

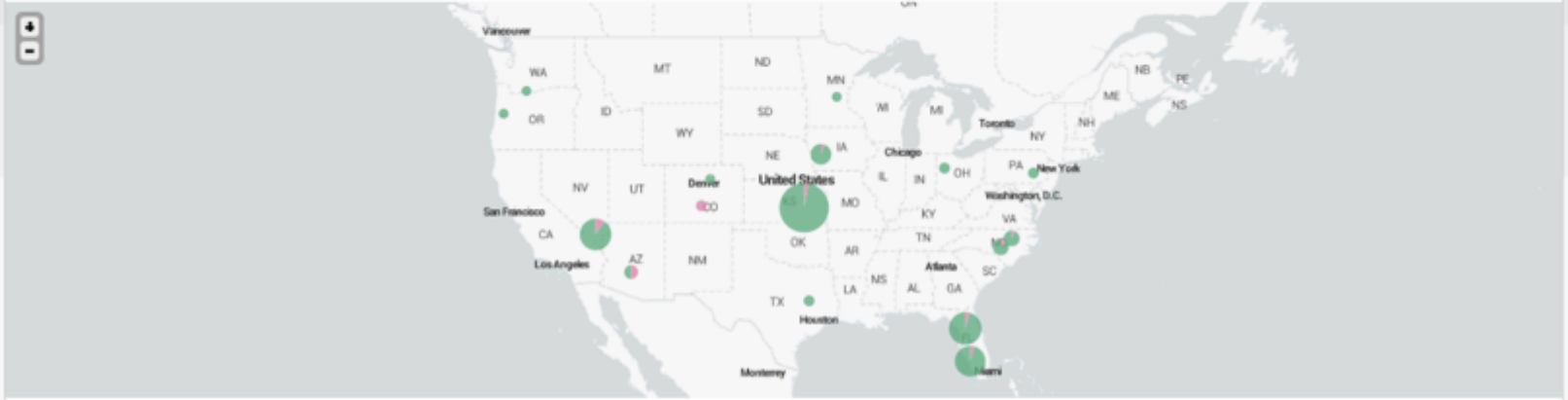
JB: RG Aggregate

Edit More Info

Last 3 days

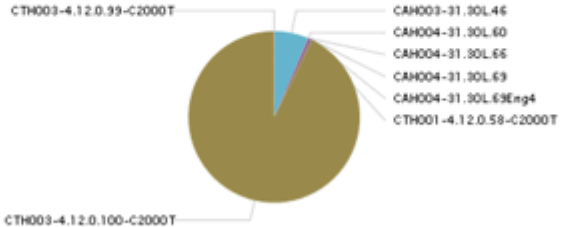
RG Models by Location

26m ago



Software Versions

26m ago



Top RG WAN CRC Errors

26m ago

WAN CRC Errors	Subscriber_ID	city	state
56967328	4073972280	Orlando	FL
21583050	7025675684	Henderson	NV
19845668	2529376752	Rocky Mount	NC
16865845	4805073544		
16417347	2397747462		
7437676	3363225005	Roxboro	NC
7383516	7022631021	Las Vegas	NV
6608769	7029140529	Las Vegas	NV
6183992	4075186016	Kissimmee	FL
5206732	7025471928	Las Vegas	NV

« prev 1 2 3 4 5 6 7 8 9 10 next »

Top RG LAN Errors

26m ago

LAN Errors	Subscriber_ID	city	state
4294967279	4024960207	Omaha	NE
23168354	5736352498	Jefferson City	MO
20156558	4078924769	St Cloud	FL
18122920	7029147489	Las Vegas	NV
14912380	9193591601	Clayton	NC
13530104	9107640258	Winston Salem	NC
11315600	8634949900		
8984577	7026485521	Las Vegas	NV
8288749	4024962461	Omaha	NE
6865030	7023604180	Las Vegas	NV

« prev 1 2 3 4 5 6 7 8 9 10 next »

splunk> App: Prism | James Brodsky | Messages | Settings | Activity | Help

Search | Dashboards | Views | Searches and Reports | Prism

JB: Ineoquest Alarms

Edit | More Info

Last 4 hours

Alarms by Program over Time

1m ago

Outage Details per Program

1m ago

_time	PROGRAM	TRANSPORTS	Outage in Minutes	Markets Unaffected	Markets Affected	FIRSTMSG
2014-09-12 02:02:09	CRIME_INVESTIG	LTTN_EAGL_CI	209	0	9	CRIME_INVESTIG :9 instances are in Alarmed state ,9 instances were in Outage state and in good state now . Carrying transport(s) : LTTN_EAGL_CI, LTTN_DTRT_CLSP_CI, LTTN_TEMP_CI, LTTN_DNVR_CI, LTTN_CLSP_CI. Monitoring point(s) : A7HLRNCOFP47WQ-G2X (Port-1), A7HLRNCOFP48WQ-G2X (Port-1), PHNXAZ-DTRT2-G2X (Port-1), PHNXAZ-DTRT1-G2X (Port-1), CLSPCO-DTRT1-G2X (Port-1), LTTNCOML-DTRT2-G10, CLSPCO-DTRT2-G2X (Port-1), LTTNCOML-DTRT1-G10, A7EAGLCOXC51WQ-G2X (Port-1)
2014-09-12 02:02:49	CSPAN3	LTTN_CLSP_CSPAN3	208	8	10	CSPAN3 : 10 instances are in Alarmed state , 12 instances were in Outage state and in good state now . Carrying transport(s) : LTTN_CLSP_CSPAN3, LTTN_TEMP_CSPAN3, LTTN_DNVR_CSPAN3, PRE_ENC_LTTNML_CSPAN3_SD_NAT, LTTN_EAGL_CSPAN3, LTTN_DTRT_CLSP_CSPAN3, LTTN_PSTENC_LTTN_CSPAN3. Monitoring point(s) : PHNXAZ-DTRT2-G2X (Port-2), A7HLRNCOFP47WQ-G2X (Port-2), A7EAGLCOXC51WQ-G2X (Port-2), LTTNCOML-DTRT2-G10, CLSPCO-DTRT1-G2X (Port-2), C7CLSPCOMA29Q-G2X (Port-1), CLSPCO-DTRT2-G2X (Port-2), A7HLRNCOFP48WQ-G2X (Port-2), LTTNCOML-DTRT1-G10, PHNXAZ-DTRT1-G2X (Port-2)
2014-09-12 02:01:59	CRINVN PRE_ENC_LTTNML_CRINVN_SD_NAT	PRE_ENC_LTTNML_CRINVN_SD_NAT	196	0	1	CRINVN : 1 instance is in Alarmed state , 1 instance was in Outage state and in good state now . Carrying transport(s) : PRE_ENC_LTTNML_CRINVN_SD_NAT. Monitoring point(s) : LTTNCOML-VAS1-G10
2014-09-12 02:29:55	SYFY_HD_P	LTTN_CRKT_CLSP_SYFYHDP_AD1	178	32	1	SYFY_HD_P : 1 instance is in Alarmed state . Carrying transport(s) : LTTN_TEMP_SYFYHDP_AD1, LTTN_DTRT_EAGL_SYFYHDP_AD1, LTTN_CRKT_DNVR_SYFYHDP_AD1, LTTN_DTRT_CLSP_SYFYHDP_AD1, LTTN_PSTENC_EAGL_SYFYHDP_AD1, LTTN_DTRT_TEMP_SYFYHDP_AD1, LTTN_CRKT_TEMP_SYFYHDP_AD1, LTTN_PSTENC_TEMP_SYFYHDP_AD1, LTTN_CRKT_CLSP_SYFYHDP_AD1. Monitoring point(s) : C7CLSPCOMA20WQ-CLSPCO
2014-09-12 02:43:56	DISNEY_HD_P	LTTN_CRKT_CLSP_DISNHDP	178	27	1	DISNEY_HD_P : 1 instance is in Alarmed state . Carrying transport(s) : LTTN_EAGL_DISNHDP, LTTN_CRKT_DNVR_DISNHDP, LTTN_TEMP_DISNHDP, LTTN_CLSP_DISNHDP, LTTN_DTRT_CLSP_DISNHDP, LTTN_CRKT_TEMP_DISNHDP, LTTN_CRKT_CLSP_DISNHDP, LTTN_DNVR_DISNHDP. Monitoring point(s) : C7CLSPCOMA20WQ-CLSPCO
2014-09-12 02:20:35	STRZEDGP	PRE_ENC_LTTNML_STRZEDGP_SD_NAT	161	3	2	STRZEDGP : 1 instance is in Alarmed state . Carrying transport(s) : PRE_ENC_LTTNML_STRZEDGP_SD_NAT, PRE_ENC_LTTNML_STRZEDGE_E_SD_NA. Monitoring point(s) : LTTNCOML-VAS1-G10
2014-09-12 02:28:25	ENCORP	PRE_ENC_LTTNML_ENCORE_W_SD_NAT	153	1	2	ENCORP : 1 instance is in Alarmed state . Carrying transport(s) : PRE_ENC_LTTNML_ENCORE_W_SD_NAT. Monitoring

PRISM Usage Views

- Cap Planning/Operations → Sales & Marketing → Security
  - Overall subscribers added/subtracted per day – correlate with campaigns
  - Types of bundles being activated, per market
  - Number of STB in home/how many are active concurrently
  - Most popular channels per market
  - Video-on-demand (VOD) usage stats
  - Types of STB (wired/wireless, which vendors) being deployed
  - Which firmware are deployed/what devices need upgrades
  - Fraud? Devices connecting from areas they shouldn't be/operating in ways they shouldn't be…
- Audience: Marketing, Sales, Executives, Fraud, Network Planners

STB Count Report

Edit More Info

Yesterday

Data is pulled for Yesterday by default, you can change to a different day using the DATE and TIME RANGE Tab above.

STB / ACCOUNT REPORT

The STB Report provide us with the number of Customer Accounts, Wireless devices, MOTO devices and Pace devices per market. In additon the total number of each device type is located at the bottom of the table and the total number of devices per market is located at the right of the table.

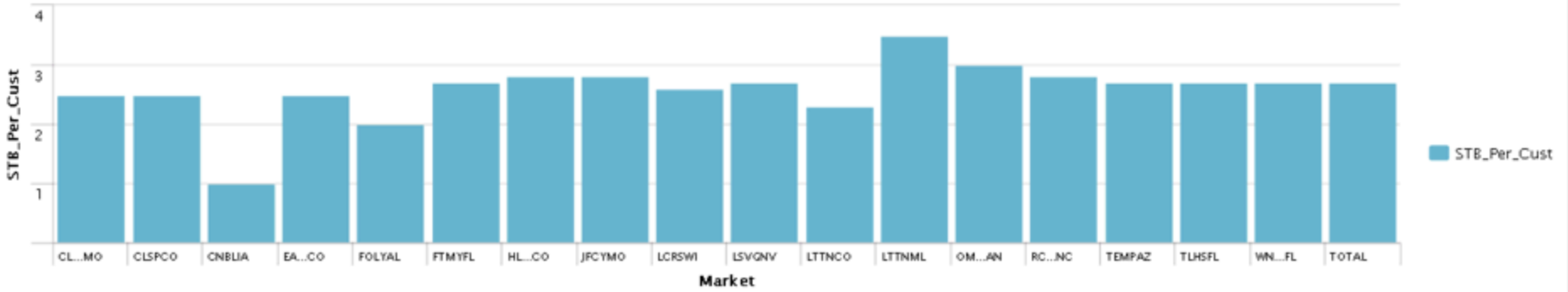
STB COUNT REPORT

<1m ago

Market	Account	Wireless	MOTO	Pace	Device_Total	STB_Per_Cust
CLMAMO	7277	4631	12968	597	18196	2.5
CLSPCO	15256	19321	9074	10374	38769	2.5
CNBLIA	2	0	2	0	2	1.0
EAGLCO	752	1016	116	747	1879	2.5
FOLYAL	560	4	1130	2	1136	2.0
FTMYFL	38819	34803	61974	7691	104468	2.7
HLRNCO	2704	4398	1188	1961	7547	2.8
JFCYMO	2923	2333	5631	235	8199	2.8
LCRSWI	10143	6147	18511	1414	26072	2.6
LSVGNV	33809	35625	52671	3581	91877	2.7
LTTNCO	3	3	4	0	7	2.3
LTTNML	2	3	4	0	7	3.5
OMAHAN	14144	25722	12018	5314	43054	3.0
RCMTNC	23949	25208	36401	6170	67779	2.8
TEMPAZ	36244	52111	31438	12608	96157	2.7
TLHSFL	8427	7413	13193	2007	22613	2.7
WNPKFL	39268	36972	60184	10124	107280	2.7
TOTAL	234282	255710	316507	62825	635042	2.7

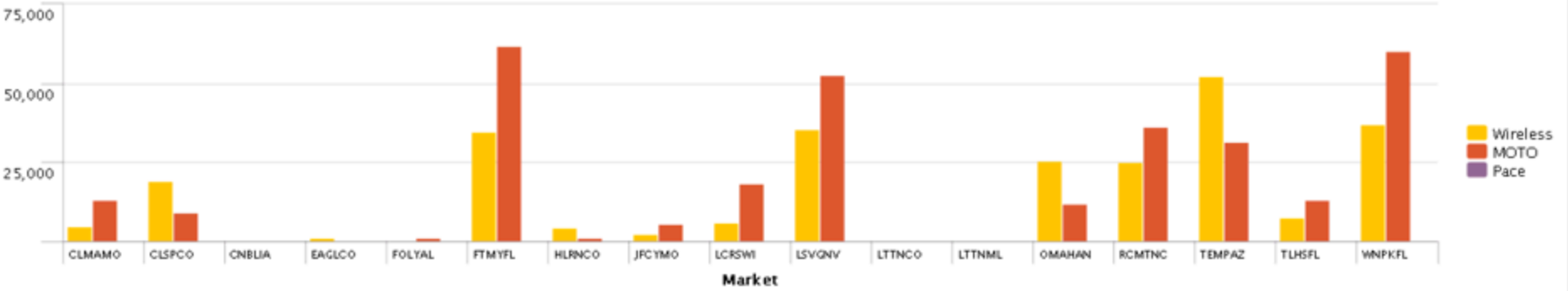
STB PER CUSTOMER

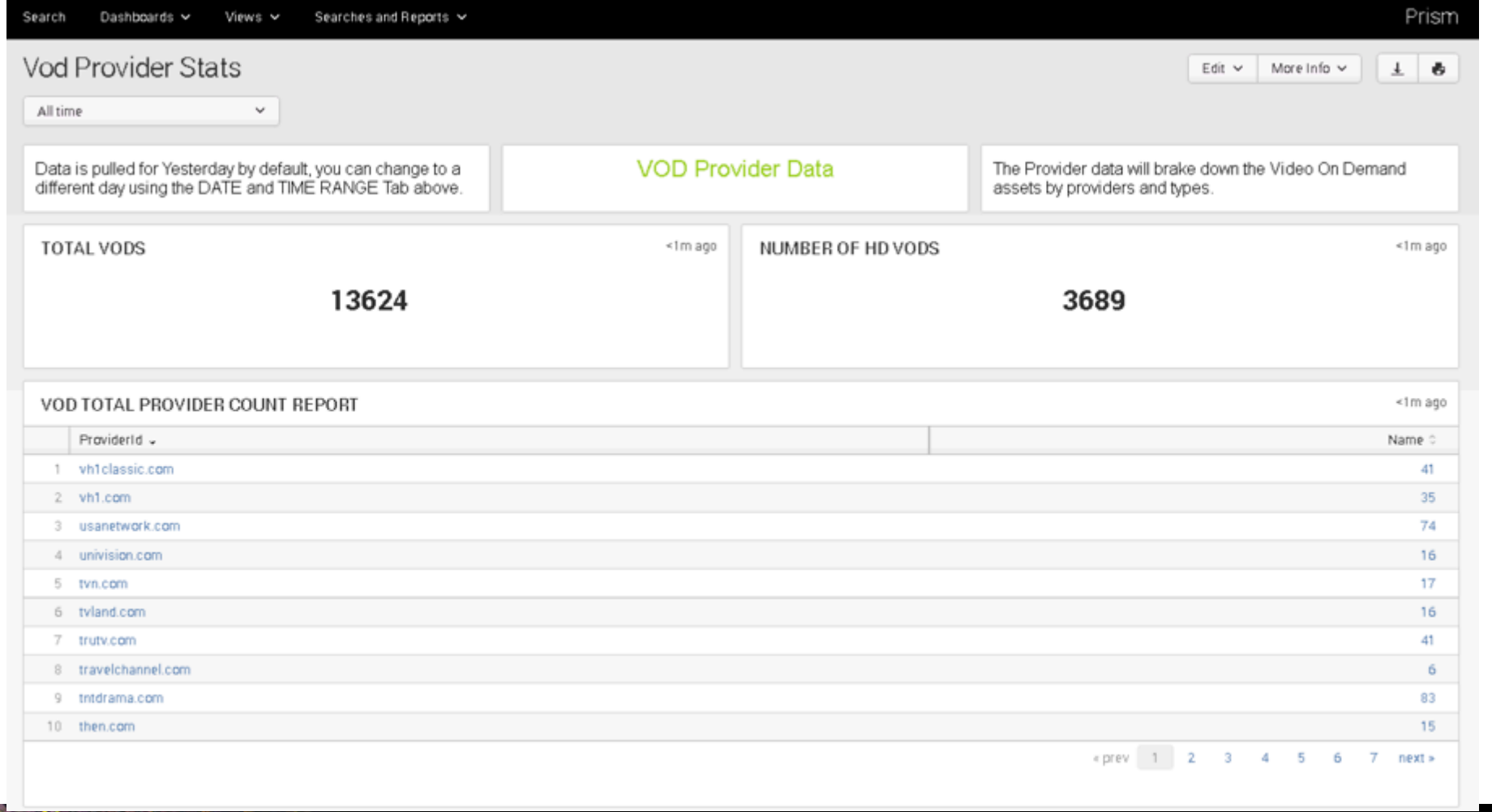
1m ago



STB COUNT CHART

1m ago




Search
Dashboards
Views
Searches and Reports
Prism
Vod Provider Stats
Edit
More Info
All time
Data is pulled for Yesterday by default, you can change to a different day using the DATE and TIME RANGE Tab above.
VOD Provider Data
The Provider data will brake down the Video On Demand assets by providers and types.
TOTAL VODS
<1m ago
13624
NUMBER OF HD VODS
<1m ago
3689
VOD TOTAL PROVIDER COUNT REPORT
<1m ago
ProviderId
Name
1 vh1classic.com 41
2 vh1.com 35
3 usanetwork.com 74
4 univision.com 16
5 tvn.com 17
6 tvland.com 16
7 trutv.com 41
8 travelchannel.com 6
9 tntdrama.com 83
10 then.com 15
« prev 1 2 3 4 5 6 7 next »

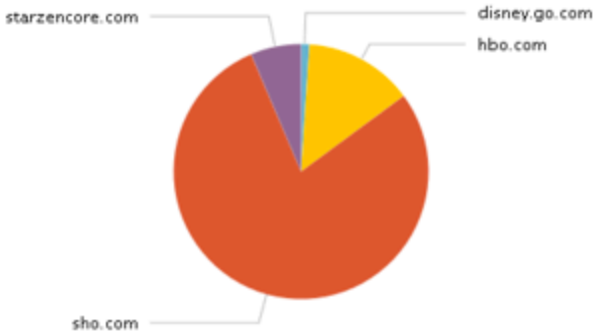
SUBSCRIPTIONS VOD PROVIDERS

2m ago

	ProviderId	count
1	disney.go.com	36
2	hbo.com	469
3	sho.com	2669
4	starzencore.com	217
5	TOTAL	3391

SUBSCRIPTIONS VOD PROVIDERS

2m ago



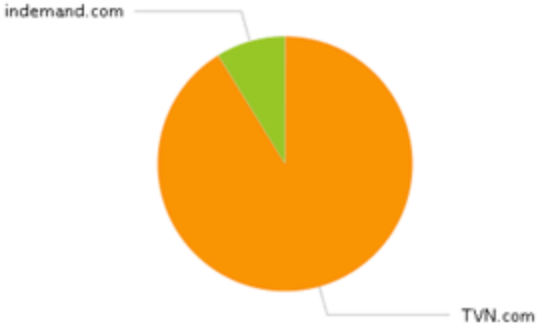
TRANSACTIONAL VOD PROVIDERS

2m ago

	ProviderId	Name
1	TVN.com	1651
2	indemand.com	159
3	TOTAL	1810

TRANSACTIONAL VOD PROVIDERS

2m ago



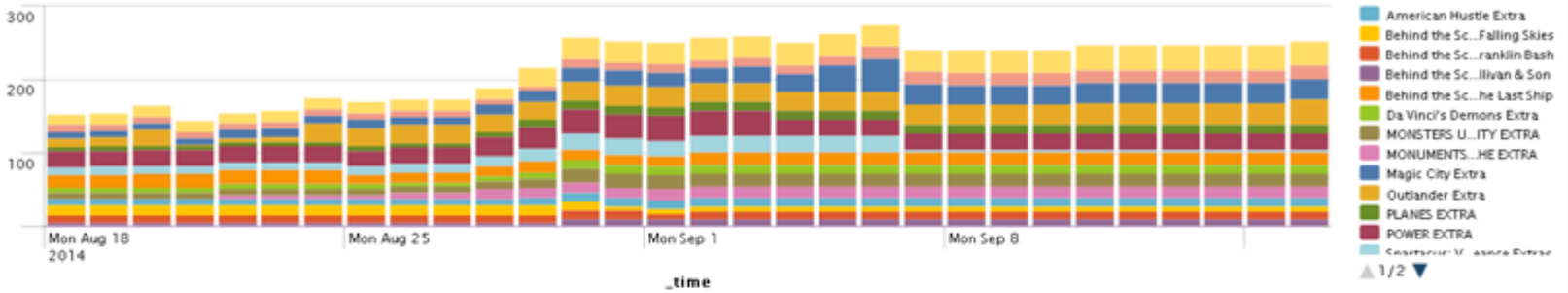
Search Dashboards Views Searches and Reports Prism

Content Examples

Edit More Info

Most Popular VOD, Last 30d

<1m ago

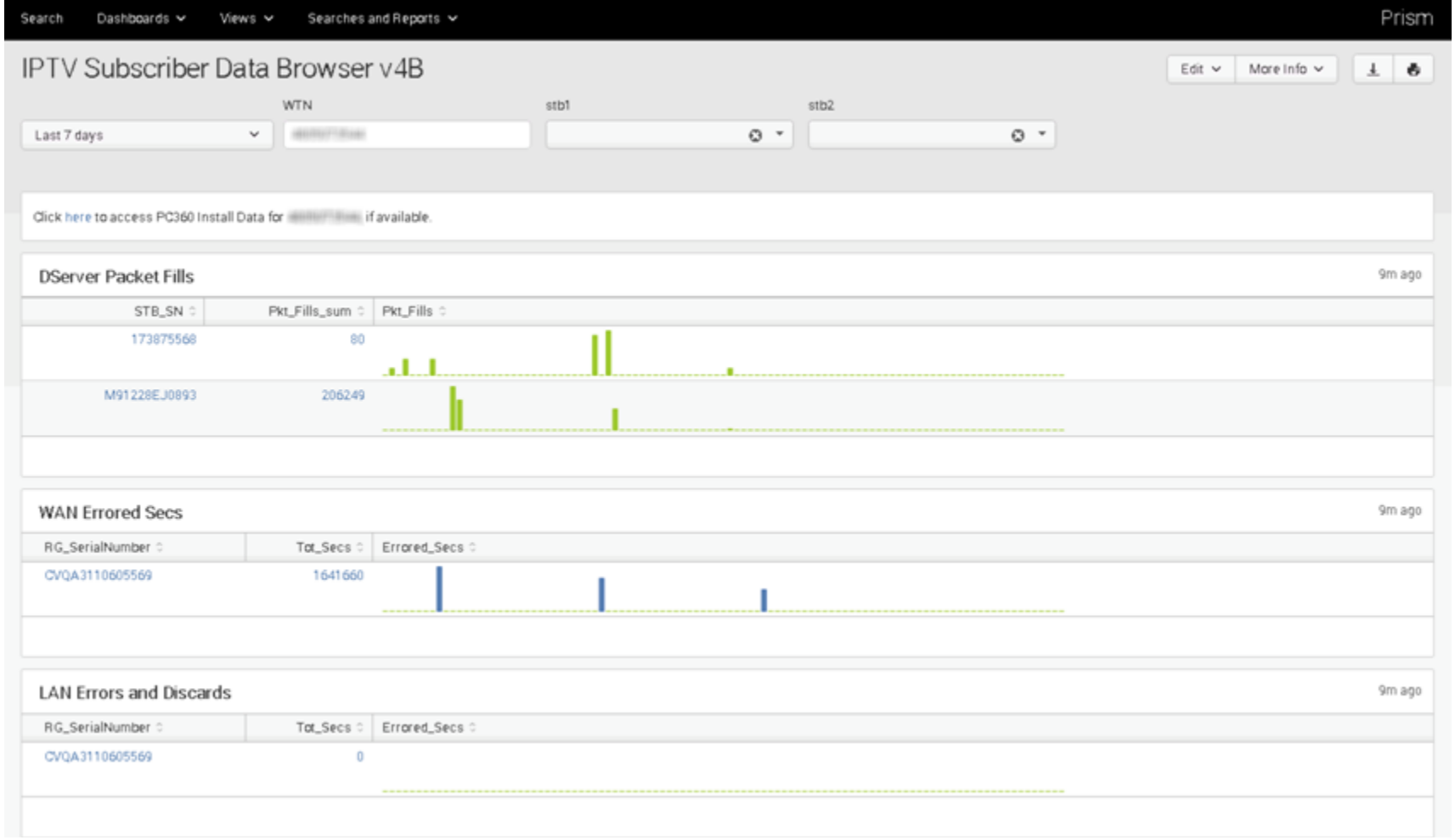


Runtime by Provider

<1m ago

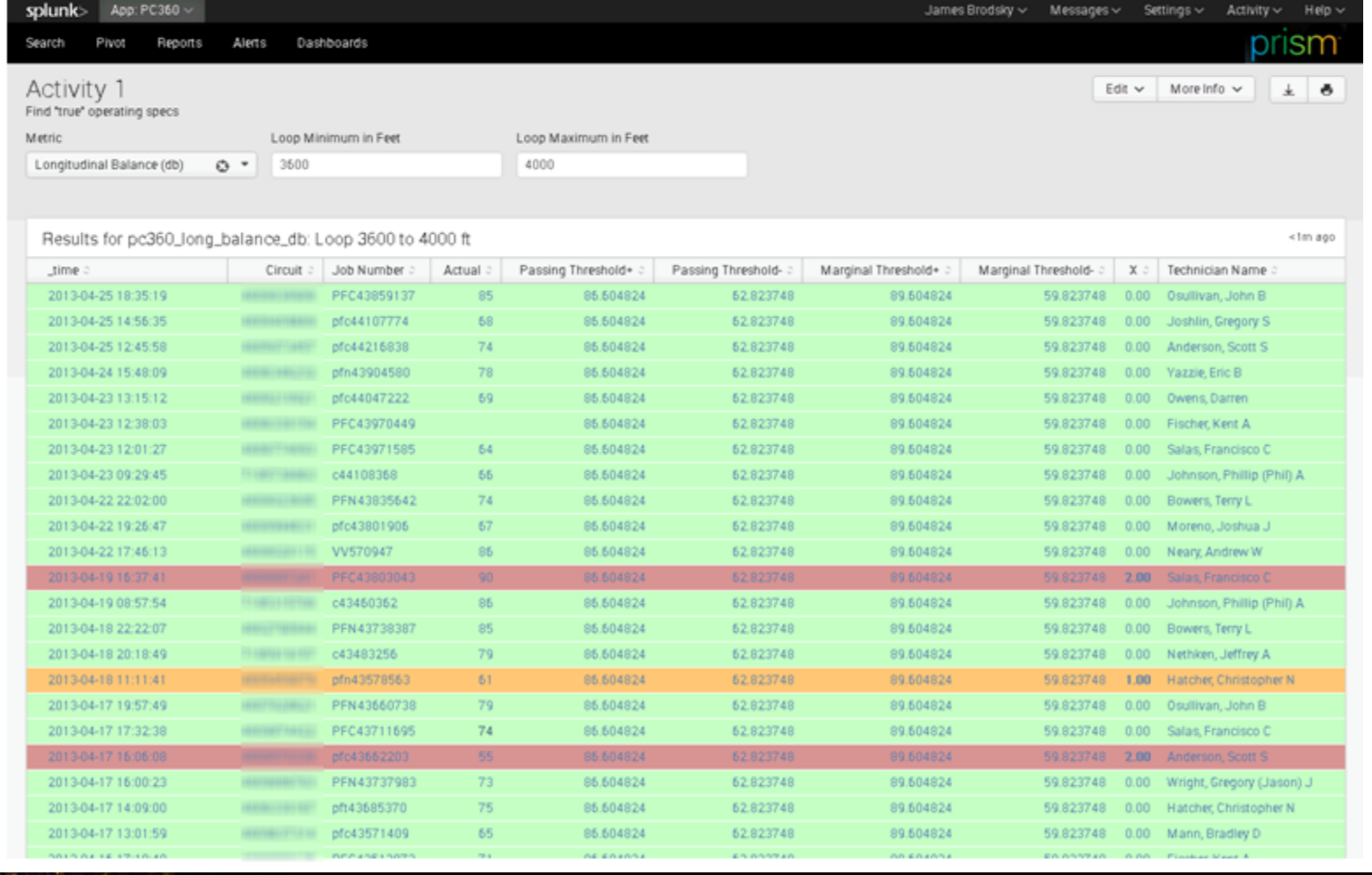
ProviderName	avg	max	min
TCM	108.866667	210	72
STARZ_HD_EXP	107.950000	144	89
ENCORE_EXP	105.230769	136	81
FLIX	104.318182	139	84
BuenaVista	104.000000	111	97
MOVIEPLEX_HD	103.028736	148	72
MOVIEPLEX	99.260188	148	50
FXM	94.600000	155	61
ENCORE_HD	92.807018	157	1
TMC	92.130435	157	2

« prev 1 2 3 4 5 6 7 8 9 10 next »


Search
Dashboards
Views
Searches and Reports
Prism
IPTV Subscriber Data Browser v4B
Edit
More Info
WTN
stb1
stb2
Last 7 days
Click here to access PC360 Install Data for if available.
DServer Packet Fills
9m ago
STB_SN
Pkt_Fills_sum
Pkt_Fills
173875568
80
M91228EJ0893
206249
WAN Errored Secs
9m ago
RG_SerialNumber
Tot_Secs
Errored_Secs
CVQA3110605569
1641660
LAN Errors and Discards
9m ago
RG_SerialNumber
Tot_Secs
Errored_Secs
CVQA3110605569
0

PRISM Tech Test Data

- Technician Test Data
  - Find issues in a new deployment before they create a “chronic” customer
  - Enable operations to understand copper stats – a new capability
  - Resolve issues even before the technician leaves via automated review
  - Gamificiation: Rank technicians based on percentages of successful installs, expedient installs. Bonus based on performance. Discipline underperforming technicians
  - Alert technician supervisors to bad installs
  - Correlate install data with issues when subscriber calls in – understand if it is a copper/fiber issue instead of an RG or STB issue – “roll the right truck”
- Audience: Technicians, Field Tech Supervisors, Operations



_time	Circuit	Job Number	Actual	Passing Threshold+	Passing Threshold-	Marginal Threshold+	Marginal Threshold-	X	Technician Name
2013-04-25 18:35:19		PFC43859137	85	86.604824	62.823748	89.604824	59.823748	0.00	Osullivan, John B
2013-04-25 14:56:35		pfc44107774	68	86.604824	62.823748	89.604824	59.823748	0.00	Joshlin, Gregory S
2013-04-25 12:45:58		pfc44216838	74	86.604824	62.823748	89.604824	59.823748	0.00	Anderson, Scott S
2013-04-24 15:48:09		pfn43904580	78	86.604824	62.823748	89.604824	59.823748	0.00	Yazzie, Eric B
2013-04-23 13:15:12		pfc44047222	69	86.604824	62.823748	89.604824	59.823748	0.00	Owens, Darren
2013-04-23 12:38:03		PFC43970449		86.604824	62.823748	89.604824	59.823748	0.00	Fischer, Kent A
2013-04-23 12:01:27		PFC43971585	64	86.604824	62.823748	89.604824	59.823748	0.00	Salas, Francisco C
2013-04-23 09:29:45		c44108368	66	86.604824	62.823748	89.604824	59.823748	0.00	Johnson, Phillip (Phil) A
2013-04-22 22:02:00		PFN43835642	74	86.604824	62.823748	89.604824	59.823748	0.00	Bowers, Terry L
2013-04-22 19:26:47		pfc43801906	67	86.604824	62.823748	89.604824	59.823748	0.00	Moreno, Joshua J
2013-04-22 17:46:13		VV570947	86	86.604824	62.823748	89.604824	59.823748	0.00	Neary, Andrew W
2013-04-19 16:37:41		PFC43803043	90	86.604824	62.823748	89.604824	59.823748	2.00	Salas, Francisco C
2013-04-19 08:57:54		c43460362	86	86.604824	62.823748	89.604824	59.823748	0.00	Johnson, Phillip (Phil) A
2013-04-18 22:22:07		PFN43738387	85	86.604824	62.823748	89.604824	59.823748	0.00	Bowers, Terry L
2013-04-18 20:18:49		c43483256	79	86.604824	62.823748	89.604824	59.823748	0.00	Nethken, Jeffrey A
2013-04-18 11:11:41		pfn43578563	61	86.604824	62.823748	89.604824	59.823748	1.00	Hatcher, Christopher N
2013-04-17 19:57:49		PFN43660738	79	86.604824	62.823748	89.604824	59.823748	0.00	Osullivan, John B
2013-04-17 17:32:38		PFC43711695	74	86.604824	62.823748	89.604824	59.823748	0.00	Salas, Francisco C
2013-04-17 16:06:08		pfc43662203	55	86.604824	62.823748	89.604824	59.823748	2.00	Anderson, Scott S
2013-04-17 16:00:23		PFN43737983	73	86.604824	62.823748	89.604824	59.823748	0.00	Wright, Gregory (Jason) J
2013-04-17 14:09:00		pft43685370	75	86.604824	62.823748	89.604824	59.823748	0.00	Hatcher, Christopher N
2013-04-17 13:01:59		pfc43571409	65	86.604824	62.823748	89.604824	59.823748	0.00	Mann, Bradley D

Activity 2

Analyze Collected Data to Assess Tech Performance

Edit More Info

owner

<1m ago

has completed **38** jobs

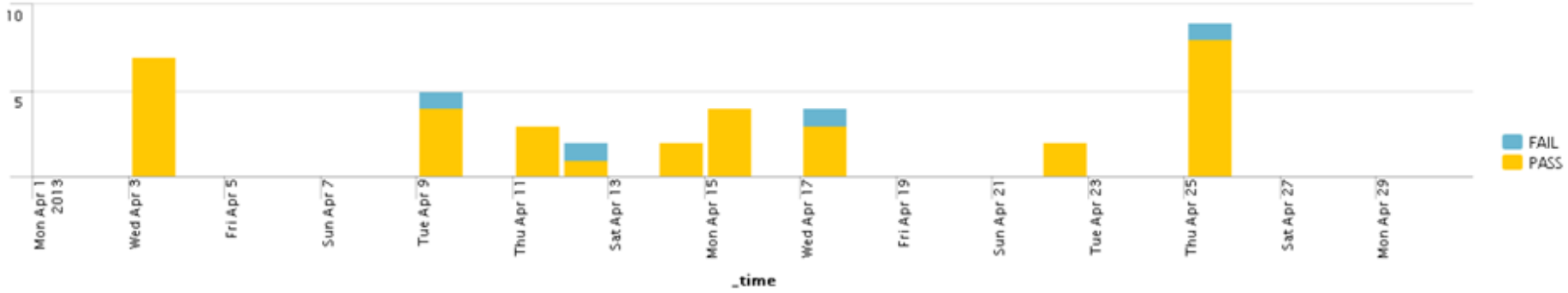
Failure %

<1m ago

Full Name	Failure %
	11

Pass Fail over Time for

<1m ago



Result Details

1m ago

_time	owner	circuit_id	passfail
2013-04-25 18:28:07	[redacted]	[redacted]	FAIL
2013-04-25 18:26:25	[redacted]	[redacted]	PASS
2013-04-25 18:23:12	[redacted]	[redacted]	PASS
2013-04-25 18:20:42	[redacted]	[redacted]	PASS
2013-04-25 18:19:30	[redacted]	[redacted]	PASS
2013-04-25 18:16:15	[redacted]	[redacted]	PASS
2013-04-25 18:11:37	[redacted]	[redacted]	PASS
2013-04-25 18:09:11	[redacted]	[redacted]	PASS
2013-04-25 18:08:20	[redacted]	[redacted]	PASS
2013-04-22 09:41:33	[redacted]	[redacted]	PASS

« prev 1 2 3 4 next »

Raw Test Results

<1m ago

i	Time	Event
>	4/25/13 6:28:07.000 PM	date_format_date_entered_m_d_Y_T_=04-25-2013 18:28:07 kicknit_data_id=16307 owner[redacted] name=Cork, [redacted] circuit_id[redacted] type=Pre Field circuit_type=FED VDSL 2 loop=1 data=Voltage Termination: 100K-Ohm VDSL Filter: G TR-Vdc 0 V: Pass (Thresholds: Pass <= 1 V, Fail > 2 V) TG-Vdc 0 V: Pass (Thresholds: Pass <= 1 V, Fail > 2 V) RG-Vdc 0 V: Pass (Thresholds: Pass <= 1 V, Fail > 2 V) TR-Vac 0 V: Pass (Thresholds: Pass <= 3 V, Fail > 20 V) TG-Vac 0.4 V: Pass (Thresholds: Pass <= 20 V, Fail > 21 V) RG-Vac 0.4 V: Pass (Thresholds: Pass <= 20 V, Fail > 21 V) TR Circuit Res. >999 MOhms: Pass (Thresholds: Pass >= 150000 kOhms, Fail < 150000 kOhms) TG Circuit Res. >999 MOhms: Pass (Thresholds: Pass >= 150000 kOhms, Fail < 150000 kOhms) RG Circuit Res. >999 MOhms: Pass (Thresholds: Pass >= 150000 kOhms, Fail < 150000 kOhms) Opens/Loop Length (T-R) 4698 ft.: Fail (Thresholds: Pass <= 4000 ft., Fail > 4000 ft.) Opens/Loop Length (T-G) 4209 ft.: Fail (Thresholds: Pass <= 4000 ft., Fail > 4000 ft.) Opens/Loop Length (R-G) 4217 ft.: Fail (Thresholds: Pass <= 4000 ft., Fail > 4000 ft.) Capacitive Balance 0.17 %: Pass (Thresholds: Pass <= 1 %, Fail > 5 %))

Total Tech Failure Percentages

1m ago

	pc360_techname	Failure_Percentage
1	[redacted]	100
2	[redacted]	100
3	[redacted]	100
4	[redacted]	50
5	[redacted]	27
6	[redacted]	20
7	[redacted]	19
8	[redacted]	17
9	[redacted]	17
10	[redacted]	17
11	[redacted]	17
12	[redacted]	15
13	[redacted]	15
14	[redacted]	14
15	[redacted]	14

« prev 1 2 3 next »

Where Are We Going?

- Build on prototype to fully operationalize platform
- Continue cross layer penetration to incorporate more platform and network diagnostics
- Iterate, automate, extend, and improve – Drive towards automated exception and trend driven capabilities
- Integrate more automated remediation (e.g. API integration to RG and STB configurations)
- Extend to TVEverywhere services, and repeat

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